

## **ABSTRACT**

The present invention is a methodology for controlled switchover of unicast and multicast data flows in packet based switching system. In some cases it is advantageous to purposefully support switchover of flows from one path to the other without causing loss of data. This is termed a “controlled” or “hitless” switchover. For example, it may be required to upgrade or replace a card and it is desirable to do this without taking an “Errored Second” hit at the system level. In accordance with the present invention switchover methodology, given that an ingress arbiter device is transmitting to both cores simultaneously, it is required that the flows to both switching cores be synchronized at an aggregator level and that an egress arbiter be given time to cease receiving packets from one Core then switch over to the other Core, and continue receiving packets. The mechanism to support this is the indication of EOF, “End of Flow” and SOF “Start Of Flow” from arbiter to aggregator in a special test cell. Starting from the ingress side a master aggregator is determined and the other aggregator becomes a slave. The arbiter in line with the traffic going to both aggregators inserts an EOF indication to the aggregators that causes the aggregators to both stop data flow of a specific VOQ selected. In order to synchronize the flows, the slave aggregator indicates to the master aggregator when it has stopped traffic on a particular flow. When the master aggregator has also stopped traffic it indicates this to the egress arbiter via the EOF indicator that also tells the egress arbiter which core to switch to. When the egress arbiter has received an EOF from both aggregators it can switch over. To restart data flow the aggregator sends a SOF cell to the egress arbiter and traffic continues as usual. Thus, a controlled hitless switchover can be supported on a per connection/VOQ flow basis as well as on a per leaf basis of a Multi-cast group.